# CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

**NABL** - Accredited Laboratory as per ISO / IEC-17025 : 2005


Job No.: CTCE/BBMP/W.No.06/KRS/CEMENT/2014-15

Date: 07.04.2014

## TEST REPORT

| | | |
|---|---|---|
| CLIENT | : | **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore. |
| AGENCY | : | **Mr. K.R. Santhosh Kumar, Contractor,** Bangalore. |
| NAME OF THE WORK | : | Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore. |
| REFERENCE | : | AEE/BTP/(WO)/548/2014-15 Dated: 05.04.2014 |
| SAMPLE ID | : | CEMENT |
| SAMPLES SUPPLIED BY | : | AGENCY |

The results of the tests conducted on the cement sample are as follows:

| Sl.No | Descriptions | Test Method as per IS | Test Result | Requirements as per IS: 8112-1989 |
|---|---|---|---|---|
| 1 | a) Initial Setting Time | IS-4031 (Part -5) | 145 Minutes | Not Less than 30 Minutes |
| | b) Final Setting Time | IS-4031 (Part -5) | 480 Minutes | Not More than 600 Minutes |
| 2 | Soundness | IS-4031 (Part 3) by the Le-Chatelier method | 1 mm | Not more than 10 mm |
| 3 | Standard Consistency | IS-4031 (Part -4) | 26.00 % | - |

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**NABL** - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.06/KRS/SAND/2014-15 : 07.04.2014

## TEST REPORT ON FINE AGGREGATES (SAND)
## IS 383-1970 (RA- 2002)

**Client** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

**Agency** : **Mr. K.R. Santhosh Kumar,** Contractor, Bangalore.

**Name of Work** : Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore.

**Reference** : AEE/BTP/(WO)/548/2013-14 Dated: 05.04.2014

Date of Testing : 07.04.2014

Material : Sand Total Wt. of Aggregates **2000**

| Is Sieve Size in mm | Weight Retained (gm) | Retained Weight in % | Cumulative Retained Weight in % | Cumulative Weight Passing in % | Spec.Limits For Zone-II |
|---|---|---|---|---|---|
| 10 | 0 | 0 | 0 | 100 | 100 |
| 4.75 | 98 | 4.9 | 4.9 | 95.1 | 90-100 |
| 2.36 | 250 | 12.5 | 17.4 | 82.6 | 75-100 |
| 1.18 | 332 | 16.6 | 34.0 | 66.0 | 55-90 |
| 600 Micron | 514 | 25.7 | 59.7 | 40.3 | 35-59 |
| 300 Micron | 420 | 21.0 | 80.7 | 19.3 | 8-30 |
| 150 Micron | 284 | 14.2 | 94.9 | 5.1 | 0-10 |

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**NABL** - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.06/KRS/AGG/2014-15 : 07.04.2014

## TEST REPORT ON COARSE AGGREGATES
## IS 383-1970 (RA- 2002)

**Client** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

**Agency** : **Mr. K.R. Santhosh Kumar,** Contractor, Bangalore.

**Name of Work** : Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore.

**Reference** : AEE/BTP/(WO)/548/2014-15 Dated: 05.04.2014

Date of Testing : 07.04.2014

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **25000**

| Is Sieve Size in mm | Weight Retained (gm) | Retained Weight in % | Cumulative Retained Weight in % | Cumulative Weight Passing in % | Spec.Limits |
|---|---|---|---|---|---|
| 80 | 0 | 0 | 0.0 | 100 | 100 |
| 40 | 995 | 4.0 | 4.0 | 96.02 | 95-100 |
| 20 | 16232 | 64.9 | 68.9 | 31.09 | 30-70 |
| 10 | 4980 | 19.9 | 88.8 | 11.17 | 10-35 |
| 4.75 | 2540 | 10.2 | 99.0 | 1.01 | 0-5 |

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**NABL** - Accredited Laboratory as per ISO / IEC-17025 : 2005


Job No.: CTCE/BBMP/W.No.06/KRS/STEEL/2014-15 07.04.2014

## TEST REPORT ON REINFORCEMENT STEEL

Client : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Mr. K.R. Santhosh Kumar, Contractor,** Bangalore.

Name of the work : Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore.

Reference : AEE/BTP/(WO)/548/2014-15 Dated: 05.04.2014

Date of Test : 07.04.2014

Technical Reference : IS: 1786-2008

| Sl. No | Nominal size (dia) (mm) | Mass per metre (Kg/mtr) | TENSILE STRENGTH | | | Bend Test | Rebend Test |
|---|---|---|---|---|---|---|---|
| | | | 0.20% proof stress/Yield stress N/mm² | Tensile strength (Ultimate stress) N/mm² | Elongation percent gauge length | | |
| 1 | 10 | 0.62 | 513 | 546 | 13.05 | O.K | O.K |

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**NABL** - Accredited Laboratory as per ISO / IEC-17025 : 2005


Job No.: CTCE/BBMP/W.No.06/KRS/STEEL/2014-15 07.04.2014

## TEST REPORT ON REINFORCEMENT STEEL

| | | |
|---|---|---|
| Client | : | **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore. |
| Agency | : | **Mr. K.R. Santhosh Kumar, Contractor,** Bangalore. |
| Name of the work | : | Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore. |
| Reference | : | AEE/BTP/(WO)/548/2014-15 Dated: 05.04.2014 |
| Date of Test | : | 07.04.2014 |
| Technical Reference | : | IS: 1786-2008 |

| Sl. No | Nominal size (dia) (mm) | Mass per metre (Kg/mtr) | TENSILE STRENGTH | | | Bend Test | Rebend Test |
|---|---|---|---|---|---|---|---|
| | | | 0.20% proof stress/Yield stress N/mm² | Tensile strength (Ultimate stress) N/mm² | Elongation percent gauge length | | |
| 1 | 12 | 0.89 | 515 | 551 | 13.30 | O.K | O.K |

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Job No.: CTCE/BBMP/W.No.06/KRS/STEEL/2014-15 07.04.2014

## TEST REPORT ON REINFORCEMENT STEEL

Client : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Mr. K.R. Santhosh Kumar, Contractor,** Bangalore.

Name of the work : Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore.

Reference : AEE/BTP/(WO)/548/2014-15 Dated: 05.04.2014

Date of Test : 07.04.2014

Technical Reference : IS: 1786-2008

| Sl. No | Nominal size (dia) (mm) | Mass per metre (Kg/mtr) | TENSILE STRENGTH | | | Bend Test | Rebend Test |
|---|---|---|---|---|---|---|---|
| | | | 0.20% proof stress/Yield stress N/mm² | Tensile strength (Ultimate stress) N/mm² | Elongation percent gauge length | | |
| 1 | 16 | 1.58 | 520 | 555 | 13.55 | O.K | O.K |

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**NABL** - Accredited Laboratory as per ISO / IEC-17025 : 2005


Job No.: CTCE/BBMP/W.No.06/KRS/CUBE/2014-15

15.05.2014

## TEST REPORT ON CONCRETE CUBES

| | |
|---|---|
| Client | : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore. |
| Agency | : **Mr. K.R. Santhosh Kumar,** Contractor, Bangalore. |
| Name of the work | : Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore. |
| Reference | : AEE/BTP/(WO)/548/2014-15 Dated: 05.04.2014 |
| Sample ID | : Drain Concrete |
| Size of cubes | : 150mmx150mmx150mm |
| Cross Sectional Area | : 22500 $mm^2$ |
| Technical Reference | : IS: 516-1959 (Reaffirmed 2008) |
| Grade of Concrete | : $M_{20}$ |
| Compressive Strength as on | : $28^{th}$ day |

| Sl.No. | Date of casting | Date of testing | Weight of cube (Kg) | Failure load (KN) | Compressive strength ($N/mm^2$) |
|---|---|---|---|---|---|
| 1 | 17.04.2014 | 15.05.2014 | 8.162 | 476.5 | 21.18 |
| 2 | 17.04.2014 | 15.05.2014 | 8.398 | 509.2 | 22.63 |
| 3 | 17.04.2014 | 15.05.2014 | 8.234 | 489.3 | 21.75 |

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Job No.: CTCE/BBMP/W.No.06/KRS/WMM/Gradation/2014-15

22.04.2014

## GRADATION FOR WMM
## MORTH TABLE-400-11

**Client** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

**Agency** : **Mr. K.R. Santhosh Kumar,** Contractor, Bangalore.

**Name of Work** : Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore.

**Reference** : AEE/BTP/(WO)/548/2014-15 Dated: 05.04.2014

Date of Testing : 22.04.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25100**

| Is Sieve Size in mm | Weight Retained (gm) | Cumulative Weight Retained (gm) | Cumulative % of Retained | Cumulative % of Passing | Spec.Limits |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0 | 100 | 100 |
| 45 | 895 | 895 | 3.6 | 96.4 | 95-100 |
| 22.4 | 6850 | 7745 | 30.9 | 69.1 | 60-80 |
| 11.2 | 5845 | 13590 | 54.1 | 45.9 | 40-60 |
| 4.75 | 3930 | 17520 | 69.8 | 30.2 | 25-40 |
| 2.36 | 2895 | 20415 | 81.3 | 18.7 | 15-30 |
| 0.600 | 2005 | 22420 | 89.3 | 10.7 | 8-22 |
| 0.075 | 2395 | 24815 | 98.9 | 1.1 | 0-8 |

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**NABL** - Accredited Laboratory as per ISO / IEC-17025 : 2005


Job No.: CTCE/BBMP/W.No.06/KRS/SDBC/Bitumen/2014-15 05.05.2014

## BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

### AASHTO T 164 & AASHTO T 30

| | |
|---|---|
| CLIENT | **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore. |
| AGENCY | **Mr. K.R. Santhosh Kumar,** Contractor, Bangalore. |
| NAME OF THE WORK | Improvements to roads and drains at Bhuvaneshwaranagara cross Roads and surround area roads in Ward No.06 in Dasarahalli village limits, BBMP, Bangalore. |
| REFERENCE | AEE/BTP/(WO)/548/2014-15 Dated: 05.04.2014 |
| SAMPLE I/D | Roads in Muneswamegowda Layout in Ward No.06 |
| DATE OF TESTING | 05.05.2014 |

### BITUMEN CONTENT DETERMINATION

| Description | Trail 1 | Trail 2 |
|---|---|---|
| 1. Weight of Mixture before Test, g | 500 | 500 |
| 2. Weight of Mixture after Test, g | 474 | 474.5 |
| 3. Weight of Asphalt and Mineral matter Extracted, | - | - |
| 4. Weight of Mineral Matter, g. | - | - |
| 5. Weight of Ash, g | | |
| 6. Weight of Bitumen Extracted, g. (corrected) | 26 | 25.50 |
| 7. Bitumen content in % | 5.20 | 5.10 |
| 8. Average | **5.15** | |

### GRADATION AFTER EXTRACTION

| SIEVE SIZE | Trail 1 | | | | JOBMIX |
|---|---|---|---|---|---|
| mm | Weight Retained, gm | % Retained | %Cummulative Retained | % Passing | Gradation |
| 13.2 | 0 | 0 | 0 | 100 | 100 |
| 9.5 | 42.65 | 9.00 | 9.00 | 91.00 | 90-100 |
| 4.75 | 260.7 | 55.00 | 64.00 | 36.00 | 35-51 |
| 2.36 | 55.84 | 11.78 | 75.78 | 24.22 | 24-39 |
| 1.18 | 42.13 | 8.89 | 84.67 | 15.33 | 15-30 |
| 0.3 | 28.65 | 6.04 | 90.71 | 9.29 | 9-19 |
| 0.075 | 29.68 | 6.26 | 96.97 | 3.03 | 3-8 |

| SIEVE SIZE | Trail 2 | | | | JOBMIX |
|---|---|---|---|---|---|
| mm | Weight Retained, gm | % Retained | %Cummulative Retained | % Passing | Gradation |
| 13.2 | 0 | 0 | 0 | 100 | 100 |
| 9.5 | 45.63 | 9.13 | 9.13 | 90.87 | 90-100 |
| 4.75 | 274.9 | 54.98 | 64.11 | 35.89 | 35-51 |
| 2.36 | 55.48 | 11.10 | 75.20 | 24.80 | 24-39 |
| 1.18 | 44.63 | 8.93 | 84.13 | 15.87 | 15-30 |
| 0.3 | 26.47 | 5.29 | 89.42 | 10.58 | 9-19 |
| 0.075 | 27.32 | 5.46 | 94.89 | 5.11 | 3-8 |

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